LETTERS TO THE EDITOR

Salt and Mortality

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To the Editor:—In an analysis of the third National Health and Nutrition Examination Survey (NHANES III) and mortality data, Cohen et al. indicated that a lower sodium intake was associated with a higher mortality.¹ However, this claim lacks substance. Firstly, in NHANES III salt intake was estimated from a single 24-hour dietary recall, which is unreliable. Furthermore, it did not include salt discretionarily added either at the table or during cooking. Secondly, among all of the analyses performed by Cohen et al., only one was significant, and all others, particularly when sodium intake was treated as a continuous variable, were not significant. To draw such wide sweeping conclusions from one significant result, when all the others were negative, seems injudicious.

A detailed examination of the baseline characteristics shows some very worrying discrepancies between the quartiles. First, individuals in the lowest quartile of sodium intake had a significantly lower calorie intake (1282 vs. 2938 kcal/day), and despite such a large difference in calorie consumption, there was only a very small difference in body mass index (25.8 vs. 26.6 kg/m²). This must imply that the group that they claimed to have the lowest salt intake was much shorter. Furthermore, individuals in the lowest quartile were 7 years older and 76% were women in the lowest compared with 32% in the highest quartile. Additionally there were significant differences between the groups in race, potassium intake, education and smoking rate. The authors tried to adjust for these differences, but the validity of such statistical adjustments, where the groups vary so enormously, is in serious doubt.

Twenty-four-hour urinary sodium is the only accurate way to measure salt intake. A cohort study where a random sample of 2,436 Finnish adults had 24-hour urinary sodium measured on their usual salt intake showed that a higher salt intake was associated with a higher cardiovascular and total mortality.² In trying to interpret these positive results, Cohen et al. invoked a J-shaped relationship, i.e. a higher salt intake consumed in Finland is harmful, but the amount eaten by most Americans is beneficial, and when salt intake is reduced to 4 g/day, it becomes dangerous again! However, detailed

examination shows that their hypothesis was flawed as individuals in the top quartile in their study had a salt intake of ≈ 15 –16 g/day with allowance for discretionary salt, and this is exactly the amount of salt consumed in Finland,² and yet there was no increased mortality.

There is a continuous relationship between salt intake and blood pressure, and randomised trials have demonstrated that, within the range of 12 to 3 g/day, the lower the salt intake, the lower the blood pressure.³ Diuretics, which lower blood pressure in an identical manner to salt restriction, are very beneficial in reducing cardiovascular mortality. It is extremely likely that there will be large benefits with salt reduction. Indeed, a randomised trial has demonstrated a 25% reduction in cardiovascular events for a 25–30% reduction in salt intake from ≈ 10 g/day⁴.

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